

What is claimed is:

1. A polarizer stereoscopic display apparatus, comprising:

- a liquid crystal display panel for producing modulated light in accordance with signal data having left-eye and right-eye image information;
- a polarizer for passing a portion of the modulated light from the liquid crystal display, wherein the passed portion of modulated light has a predetermined polarization; and
- a patterned retarder layer for separating light polarization passes through the polarizer into a left-eye picture and a right-eye picture, with the separation performed in accordance with the pattern of the retarder layer.

2. The polarized stereoscopic display apparatus according to claim 1, wherein the retarder layer is formed on a transparent substrate made from a solvent-proof polymer.

3. The polarized stereoscopic display apparatus according to claim 2, wherein the transparent substrate does not affect polarization changes of the light between the polarizer and the retarder layer.

4. The polarized stereoscopic display apparatus according to claim 1, wherein the retarder layer contains a chiral material for enabling light modulation.

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5. The polarized stereoscopic display apparatus according to claim 4, wherein the retarder layer is exposed to light so as to be patterned with a plurality of first cell areas for transmitting light for the left-eye picture and with a plurality of second cell areas for transmitting light for the right-eye picture.

6. The polarized stereoscopic display apparatus according to claim 5, wherein the first and second cell areas are in alternating lines.

7. The polarized stereoscopic display apparatus according to claim 5, wherein the first and second cell areas are arranged in a checkered pattern.

8. The polarized stereoscopic display apparatus according to claim 1, further including polarizing glasses for receiving different polarization.

9. The polarized stereoscopic display apparatus according to claim 8, wherein said polarizing glasses have different polarization for a left lens and a right lens.

10. The polarized stereoscopic display apparatus according to claim 1, wherein said retarder layer is covered with a protecting polymer.

11. A polarized stereoscopic display apparatus, comprising:
a polarizer; and

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5 a retarder layer on a transparent substrate formed from wave guide material, the retarder layer for polarizing light and modulating polarization from the (transparent substrate the) polarizer to separately produce a left-eye picture and a right-eye picture, wherein said transparent substrate is adhered to the polarizer.

12. The polarized stereoscopic display apparatus according to claim 11, wherein said transparent substrate is made from wave guide material and contains a solvent-proof polymer.

10 13. The polarized stereoscopic display apparatus according to claim 11, wherein the retarder layer contains a chiral material that enables light modulation.

15 14. The polarized stereoscopic display apparatus according to claim 13, wherein said retarder layer is partially exposed to light so as to be divided into a plurality of first cell areas for transmitting light and modulating polarization for the left-eye picture and a plurality of second cell areas for transmitting light and modulating polarization for the right-eye picture.

20 15. The polarized stereoscopic display apparatus according to claim 14, wherein said first and second cell areas are arranged in alternating lines.

16. The polarized stereoscopic display apparatus according to claim 14, wherein said first and second cell areas are arranged in a checkered pattern.

17. A method of manufacturing a polarized stereoscopic display device, comprising the steps of:

preparing a polarizer and a transparent substrate made from WGM;

forming a retarder layer on the transparent substrate such that the retarder layer includes a plurality of first cell areas for transmitting light for a left-eye picture and a plurality of second cell areas for transmitting light for a right-eye picture; and

adhering the transparent substrate and retarder layer on the the polarizer.

18. The method of manufacturing the polarized stereoscopic display device according to claim 17, wherein the transparent substrate contains a solvent-proof polymer.

19. The method of manufacturing the polarized stereoscopic display device according to claim 17, wherein the retarder layer contains a chiral material that (permits light modulation.

20. The method of manufacturing the polarized stereoscopic display device according to claim 19, wherein the first cell areas and the second cell areas are formed by partially exposing the chiral material.

21. The method of manufacturing the polarized stereoscopic display device according to claim 20, wherein the first and second cell areas are arranged in alternating lines.

22. The method of manufacturing the polarized stereoscopic display device according to claim 20, wherein the first and second cell areas are arranged in a checkered pattern.

5 23. A polarized stereoscopic display apparatus, comprising:
a liquid crystal display panel for producing modulated light in accordance with signal data, wherein said signal data produces left-eye and right-eye modulated light in a predetermined pattern;
a polarizer for passing a portion of said modulated light from said liquid crystal display
10 panel, wherein said passed portion of modulated light has a predetermined polarization; and
a patterned retarder layer on said polarizer, said retarder layer including a plurality of first areas cells for separating light passed through said polarizer into a left-eye picture and a plurality of second areas cells for separating light passed through said polarizer into a right-eye picture;
15 wherein said plurality of first cells areas and said plurality of second cells areas are patterned in accordance with said predetermined pattern of said left-eye and right-eye modulated light.

24. The polarized stereoscopic display apparatus according to claim 23, wherein
20 said retarder layer and said polarizer are separated by a transparent substrate.

25. The polarized stereoscopic display apparatus according to claim 23, wherein said retarder layer contains a chiral material made from a liquid crystal polymer mixture, containing a chiral dopant.

26. The polarized stereoscopic display apparatus according to claim 25, wherein said first cells areas and said second cells areas are defined by light exposure.

5 27. The polarized stereoscopic display apparatus according to claim 23, wherein said first and second cells alternate every other line.

28. The polarized stereoscopic display apparatus according to claim 23, wherein said first and second cells are arranged in a checkered pattern.

10 29. The polarized stereoscopic display apparatus according to claim 24, wherein said retarder layer is formed on said transparent substrate.

15 30. The polarized stereoscopic display apparatus according to claim 29, wherein said transparent substrate is adhered to said polarizer.

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